UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
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JUN 25 2001

Ref: 8P-AR

Francis J. Schwindt, Chief
Environmental Health Section
State Department of Health
P.O. Box 5520
Bismarck, North Dakota 58506-5520

Dear Fritz:

As a follow up to the conference call we had last Monday, enclosed are our suggested revisions to your June 4, 2001 draft letter to major air pollution sources. In general, we have changed the format to first state how the Department is proposing to determine baseline emissions and then ask for any other, more reliable, data that may be useful in making that determination. We also suggest removing the discussion on the use of allowable emissions since, unless a source was constructed before the major source baseline date and not in operation until after the minor source baseline date, this is not relevant to the analysis.

Since you indicated that you are still on track to complete the modeling analysis according to our agreed upon schedule (*i.e.*, by January 2, 2002 or within 9 months from the time EPA completes its review of the modeling protocol), I would like to take this opportunity to also provide comments on the air quality modeling protocol submitted to us on April 2, 2001. This letter will then document the comments which we have expressed in numerous calls and meetings and complete our review.

I should add that these comments have been discussed with the management at the EPA Office of Air Quality Planning and Standards and represent the unified position of the Agency.

In our review of the State's proposed modeling protocol EPA identified three areas of major concern as discussed below:

1. One Year of Emissions Data

In the States protocol only **one year** (2000) of actual emissions data from the sources would be used in the modeling. The August 7, 1980 PSD regulations indicate that increment consumption calculations should generally be based on source activity for the two years immediately preceding the date for which increment consumption is being calculated, provided that the two year period is representative of "normal" source operation. There is no guarantee that the reduced emissions that occurred from some major sources in calendar year 2000 will

recur in future years. We have agreed to allow the State to include the Coal Creek reductions in the increment modeling on the expectation that, since the control equipment modifications have already been installed, these reductions will be permanent (EPA is also requesting written verification from the source that this is indeed the case). However, for the other major sources, historical emissions data from 1995 through 1998 generally show annual emissions as high or higher than calendar year 2000 and there have been no apparent changes in control equipment. The higher emissions for these sources in the years prior to 2000 do not support the contention that use of a single year (2000) of emissions data would be representative of "normal source operation". For this reason EPA believes that, consistent with the PSD regulations, the final increment modeling must be based on the most recent two years of actual emissions data (1999 and 2000).

2. Paired Data

The second issue is the State's proposal to pair hourly source emissions data with meteorology data for the increment modeling. Since the 1980 PSD regulations were written, increment consumption has been calculated based on a single estimate of source emissions for each averaging time associated with the PSD increments. These estimates are based on a review of historical data on the source's most recent two years of operation, and where applicable, the source's 2-year average baseline emissions. CEM data has only become available since the mid-1990's, and a national policy on its possible use in calculating increment consumption has not been established. Region 8 believes that for diagnosing increment consumption from PSD sources that operate sporadically the use of paired meteorology and emissions data may be a useful tool. However, the use of paired CEM and meteorology data for all of the major emitting sources in a refined increment analysis raises a number of technical and policy issues as noted below:

(1) The minimum five-year period of record for meteorology data must be used in the modeling (see discussion on meteorology period of record below). However, the resource requirements for assembling a five-year concurrent data set limits the practicality of such an approach, particularly in an area such as western North Dakota with many major sources. For example, a paired data set for a five-year period would require 43,800 separate emission values to be input into the model for each source with CEM data. A related issue is that the five-year period of record that is needed to characterize representative meteorological conditions is not consistent with the PSD regulatory requirement to use only the most recent two years of source emissions data.

(2) For sources that were in operation before the baseline date, the net difference between baseline emissions and current emissions is calculated to determine increment consumption. The complementary relationship between emissions in the two periods supports using the same analytical approach for each period. If increment consumption for the current year is calculated on a daily or hourly basis, it is not clear how baseline emissions would be credited. For example, if a source emitted 100 tons of SO_2 on January 1, 1999, would the State credit emissions from a corresponding day on January 1, 1977 to calculate increment consuming emissions? This does not seem appropriate because the differing meteorology on these two days would lead to an apples and oranges comparison which could result in either an overestimate or underestimate of increment consumption.

In addition, there are issues related to the calculation of day-specific emissions. If, for example, on January 1, 1977 the source was down for maintenance, the full 100 tons of emissions on January 1, 1999 would be considered increment consuming.

(3) If the above issues were resolved, and a full five years of paired data were used in the increment analysis, there remains an important issue related to the PSD increment planning process. In increment analysis the goal is to estimate increment concentrations that exist today and in the near future. The paired data concept provides the increment concentration that existed on specific days in the past but provides no insight into what may happen tomorrow if meteorology and emissions are different than the paired values that occurred in the historical data set. Thus, EPA believes the State's proposal is not as protective of Class I areas as Congress intended the PSD program to be. The longstanding practice to use a single emissions value in increment analyses provides a level confidence that, at a given emission rate, PSD increments will not be exceeded in the future for any meteorology type that may occur.

3. One Year of Meteorological Data

Region 8's third major concern with the State's proposal is the use of only **one year** (2000) of meteorology data in the analysis. One year of data is not sufficient to characterize worst case meteorological conditions, and is not consistent with the EPA Guideline on Air Quality Modeling, which requires five years of representative meteorological data. The need for the full five years of data is clearly shown by a review of the State's original modeling analysis. That analysis showed that, when emissions are held constant, the number of 3-hour increment violations ranged from 2 in the most favorable year to 9 violations in the worst year. The 24-hour average violations ranged from 12 violations in the best year to 22 in the worst year. Obviously, when only one year is used there is only a 20 percent probability that the data represents the worst case meteorology that will occur in a five-year period.

In addition to the above comments, we are concerned with the lack of information in the modeling protocol on source emissions, both baseline and increment consuming, and hope we can continue to work together in developing these inventories. Meanwhile, we are proceeding with our own analysis according to EPA regulation and guidance.

If you have any questions on these comments or on the enclosed revisions to your draft letter, please contact me at (303) 312-6005.

Sincerely,

Richard R. Long, Director
Air and Radiation Program

Enclosure

cc: Jeff Burgess, NDDH

June 22, 2001

FIELD(address)

Dear FIELD(salutation):

The North Dakota Department of Health (Department) has administered the federal requirements of Prevention of Significant Deterioration (PSD) of the Clean Air Act (CAA) in the state since 1977 when the Environmental Protection Agency (EPA) granted the Department PSD primacy. The EPA and some affected PSD sources have raised issues relating to PSD that may need resolution. The Department needs to reassess whether PSD Class I area increments for SO_2 are consumed. As part of that process, we need to determine which major and minor sources, as well as the emissions from those sources, are baseline or are increment consuming or both.

Brief Background

The PSD provisions of the CAA designated certain areas as Class I areas. The in-state Class I areas are the Theodore Roosevelt National Park and the wilderness portion of the Lostwood National Wildlife Refuge. The PSD provisions established air quality deterioration limits, called increments, in these areas. The increments are increases in air quality concentrations above those existing on dates when PSD provisions were triggered. Currently, the air quality in the Class I areas is better than the state and federal CAA ambient air quality standards.

For all PSD permitting actions, the law requires using air quality models to assess air quality in Class I areas due to source emissions. In 1978, the Department determined that the federally allowed PSD increments for sulfur dioxide could be exceeded due to the proposed Antelope Valley station units 1 and 2 short-term sulfur dioxide emissions. However, this source was permitted at short-term emission rates that would not cause ambient sulfur dioxide air quality degradation to exceed the PSD Class I area increments for sulfur dioxide.

Later, additional new sources of sulfur dioxide and source modifications were proposed. The additional emissions from these sources also contributed to sulfur dioxide concentrations that exceeded the increments. On four occasions from 1982 through 1992, the federal Department of Interior – as the federal land manager for the state's PSD Class I areas – determined that air quality-related values would not be adversely affected due to the additional sulfur dioxide emissions emitted by the proposed new sources and source modifications. Based on this determination, the Department permitted these additional sources.

In February 2000, EPA Region 8 notified the Department that the modeled ambient sulfur dioxide concentrations exceeding the PSD Class I increments were violations of the CAA. In January 2001, EPA notified the Department that it intended to issue a State Implementation Plan (SIP) call; the SIP call would have required revision of the SIP and implementation of corrective

measures. After consultation with EPA, the Department responded by offering a schedule to reevaluate whether the increment is consumed. EPA concurred with the Department's proposal to complete the reassessment by February 2002. Copies of a Department letter dated March 13, 2001, and an EPA letter dated March 28, 2001, are attached.

In 1999, the Department sent a letter to major sources concerning determination of baseline emission rates for sulfur dioxide. In that letter, the Department provided calculations of the baseline sulfur dioxide emission rates for facilities in North Dakota based on U.S. Environmental Protection Agency guidance. After receiving some objections to the preliminary calculations, the Department did not complete its determinations on baseline emission rates. We would like to resolve that issue now so we can proceed with our increment assessment analysis. This letter gives you the opportunity to provide your position concerning this issue and any supporting documentation.

Specifically, we would like you to address several issues regarding the use of historical emissions to establish the baseline emission rate.

1. The Department will be basing historical emission rates on AP-42 emission factors and the Annual Emission Inventory Reports from 1976-1977. If you can document other, more reliable data please provide the best calculations and supporting documentation you have to determine emissions.

2. Please provide your input on the most reliable method for calculating historical 3-hour and 24-hour emission rates (*e.g.*, using 1-hour fuel feed rates, processing rates, etc. reported on the Annual Emission Inventory Reports, using current year emission patterns applied to the base year averages).

3. Increment consumption will generally be based on changes in actual emissions reflected by normal source operation for a period of 2 years. EPA rules and guidance allow the potential to emit to be used if little or no operating data are available, as in the case of a permitted emission unit constructed before the major source baseline date but not yet in operation at the time of the minor source baseline date (see 40 CFR 51.166(b)(13), p. C.11 of the PSD workshop manual and 45 FR 52718, col. 3). The Department will be using actual emission rates based on the two-year period preceding the minor source baseline date (*i.e.*, 1976 and 1977) unless adequate documentation is provided to show that emissions during that two-year period are anomalous.

4. If applicable, what SO_2 emissions from minor sources associated with your facility (i.e., oil and gas wells, etc.) are increment consuming, and what SO_2 emissions from those minor sources should be included in baseline?

Please provide the emission rates (lb/hr) which you believe are the baseline emission rates for your unit(s) on a 3-hour, 24-hour and annual basis and any supporting documentation. We ask that

you submit your response to this letter within 45 days of receipt.

After receiving the requested information, the Department will develop a preliminary decision. That decision will be shared with you and be considered through a public process including a possible hearing later this fall. If you have any questions, please feel free to contact us.

Sincerely,

Francis J. Schwindt, Chief
Environmental Health Section

FJS:cc
Attach.

TELEFAX COVER SHEET

TO: NAME: Fritz Schwindt MAIL CODE: _____

AGENCY/FIRM: NDDH PHONE #: _____

DATE: June 25, 2001

FAX MACHINE NUMBER: (701)328-5200

NUMBER OF PAGES (including cover sheet) 7

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REMARKS:

Following is a faxed version of our letter that will be mailed today.